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Abstract

PHYSICAL INVESTIGATION OF WWPR REACTOR AT NOVO-VORONEZH ATOMIC POWER STATION

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The paper describes WWPR of the Novo-Voronezh atomic power station and gives the physical characteristics of its core. It discusses the main physical problems involved in the development of such reactors, the interdependance of physical and operational characteristics of the reactor, particularly, the problems of nuclear safety peculiar to a large water-cooled water-moderated reactor which has a comparatively small number of effective control organs. Attention is drawn to the problem of "local criticality".

The paper summarized the results of investigations with respect to various physical characteristics of the core in a water reactor employing critical assemblies and discusses the problems connected with the calculation analysis of the cores in such reactors and refinement of the calculation techniques on the basis of the experimental data. The main emphasis is placed on the investigation of the efficiency of various control components, their interaction in the core, deformation of the neutron field and of the heat-release field.

This is followed by the calculation analysis of the core in WWPR of the Novo-Voronezh atomic power plant and by comparison between the design and experimental characterisitcs obtained from the investigation of the operating core of the reactor.

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